Volume 56 1981

Mathematical Biosciences

an international journal

ELSEVIER
NEW YORK

Mathematical Biosciences

an international journal

Editor **John A. Jacquez**

Editorial Assistant
MRS. MARIANNE JACQUEZ
490 Huntington Drive
Ann Arbor, Michigan 48104

Book Review Editor
Donald H. Perkel
Department of Biological Studies
Stanford University
Stanford, California 94305

Associate Editors

Richard Bellman
Founding Editor
Department of Electrical Engineering
University of Southern California
Los Angeles, California 90007

Robert M. May
Department of Biology
Princeton University
Princeton, New Jersey 08540

Charles J. Mode
Department of Mathematics
and Institute for Population Studies
Drexel University
Philadelphia, Pennsylvania 19104

Editorial Board

Rutherford Aris
Department of Chemical Engineering
and Materials Science
University of Minnesota

Karl J. Astrom
Lund Institute of Technology
Lund 7, Sweden

George A. Bekey
Biomedical Engineering
University of Southern California

Leslie E. Blumenson
Roswell Park Memorial Institute
Buffalo, New York 14263

Chin Long Chiang
Department of Biomedical
and Environmental Health Sciences
University of California, Berkeley

Claudio Cobelli
Department of Electrical Engineering
University of Padua
35100 Padua, Italy

Charles Delisi
National Cancer Institute
Bethesda, Maryland 20014

George F. Estabrook
Department of Botany
The University of Michigan

John Z. Hearon
National Institute of Arthritis
Bethesda, Maryland 20014

Birger Jansson
M. D. Anderson Hospital
and Tumor Institute
Houston, Texas 77025

Samuel Karlin
Department of Mathematics
Stanford University

Jerzy Neyman
Department of Statistics
University of California, Berkeley

H. G. Othmer
Department of Mathematics
The University of Utah
Salt Lake City, Utah 84112

John Rinzel
National Institute of Arthritis
Bethesda, Maryland 20014

Michael A. Savageau
Department of Microbiology
The University of Michigan

Lawrence Stark
Physiological Optics
University of California, Berkeley

John L. Stephenson
NHLBI, NIH
Bethesda, Maryland 20014

James A. Yorke
Institute for Physical Science
and Technology
College Park, Maryland 20742

Mathematical Biosciences

an international journal

Volume 56 1981

ERIC WALTER AND YVES LECOURTIER (Plateau du Moulon, France)
Unidentifiable Compartmental Models: What to Do? 1

DANIEL S. LEVINE (Pittsburgh, PA)
On the Stability of a Predator-Prey System with Egg-Eating Predators 27

PIET DE KLERK (Amsterdam, The Netherlands) AND MARINO GATTO (Milano, Italy)
Some Remarks on Periodic Harvesting of a Fish Population 47

DAVID RUELLE (Bures-sur-Yvette, France)
A Mechanism for Speciation Based on the Theory of Phase Transitions 71

LEN NUNNEY (Princeton, NJ)
Interactive Competition Models and Isocline Shape 77

WILLIAM F. PICKARD (St. Louis, MO)
How Does the Shape of the Substomatal Chamber Affect Transpirational Water Loss? 111

JOHN Z. HEARON (Bethesda, MD)
Transient Times in Enzyme and Coupled Enzyme Systems 129

G. J. WEIR (Wellington, New Zealand)
Analysis of Munch Theory 141

Short Note

E. R. WILLIAMS (Canberra, Australia) AND R. A. BAILEY (Milton Keynes, UK)
A Note on Designs for Neighbor Configurations 153

ERRATA 155

Mathematical Biosciences

an international journal

C. C. Travis (Oak Ridge, TN) and Glen Haddock (Rolla, MO)
On Structural Identification 157

T. H. Pierce, R. I. Cukier, and J. L. Dye (East Lansing, MI)
Application of Nonlinear Sensitivity Analysis to Enzyme Mechanisms 175

Graham Winley and Keith Tognetti (Wollongong, Australia)
A Growth Function for a Column of Cells 209

S. Childress and J. K. Percus (New York, NY)
Nonlinear Aspects of Chemotaxis 217

R. S. Thompson and W. G. Gibson (Sydney, Australia)
Neural Model with Probabilistic Firing Behavior. I. General Considerations 239

R. S. Thompson and W. G. Gibson (Sydney, Australia)
Neural Model with Probabilistic Firing Behavior. II. One- and Two-Neuron Networks 255

Tommy Sundqvist, Christer Tagesson, and Karl-Eric Magnusson (Linköping, Sweden)
Simulation of a Multicompartment Model for the Intestinal Permeability to Low-Molecular-Weight Probes (Polyethyleneglycol 400) 287